DFN NTP DB Release Deployment Guide

1.4

DirectFN
Direct International Financial Network

Revision History

Date	Version	Description	Author
02/10/2020	1.0	Initial user guide for NTP DB deployment	**Sandamal de Silva**
27/11/2020	1.1	Added DB Backup/Rollback	**Sandamal de Silva**
16/12/2020	1.2	Enhancements based on DB Backup/Rollback	**Sandamal de Silva**
17/12/2020	1.3	Enhancements and formatting changes	**Shalini Rathnayaka**
16/12/2020	1.4	Windows 7 compatible summary log prerequisites requirements	**Sandamal de Silva**

Contents

1 Introduction

1.1 Purpose

This **DB Deployment Guide** gives a high level picture of how to apply a DB Release to Your Database.

In the NTP DB release, you will find four major modules.

1. Backup Scripts
2. New DB Release
3. Rollback DB Release
4. Clean-Up

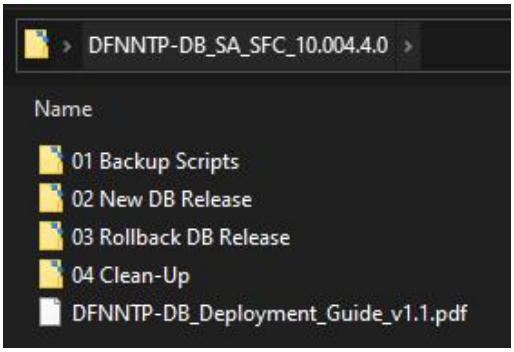

Figure 1 : Four Major Modules in NTP DB Release

Go through the following procedures to apply the release properly.

2 Verify Pre-Conditions before Applying the DB Release

2.1 Verify Microsoft Visual C++ 2019 Runtime

Make sure you PC installed with “MICROSOFT VISUAL C++ 2019 RUNTIME”. If not, please install the runtime available with DB release.

2.2 Verify and Validate the DB Release

Versioning of the received DB Release should be according to the standard method including the Broker name and correct DB Release version.

Received DB Release should not contain any log files (*ex: log.run.dfn_ntp.tables*).

**NOTE*: Check schema wise folders from both Build-Scripts and UpdateData to make sure no log files available.

2.3 Check DB for DB Release Changes

Log in to DB using a user with DBA privileges (*ex: DFN_DBA*)

2.3.1 Check last applied DB Release version

Last DB Release version applied can be checked using below script.

```
SELECT *
  FROM dfn_ntp.v00_sys_config
 WHERE v00_key = 'VER_DB';
```

2.3.2 Check Invalid Objects in the DB

There are two types of invalid objects need to be verified before the deployment.

1. Check DB objects which are not ‘VALID’ in the DB (*DB objects that are not compiled currently, need to be identified and compiled before new deployment*)

```
SELECT *
  FROM all_objects
WHERE status <> 'VALID';
```

2. Incorrectly deployed objects (*DB objects deployed in the logged in schema due to schema prefix not specified*)

```
SELECT * FROM user_objects;
```

3 Execute DB Backup

DB Backup-Scripts will take necessary DDL/DML level backups for Objects or Data, based on the below T&Cs and store in same DB schema. New DB package will be created in the current user schema to support the exercise and removed at the end of the exercise. Data backups will be applicable only for master data and customer related data (Transaction/audit or history snapshot data will be excluded).

3.1 DDL Level

Type	*Action*	
Tables	Create	N/A
	Drop	Backup Table with data for master data and customer related data (Transaction/audit or history snapshot data will be excluded)
	Rename	N/A
Columns	Create	N/A
	Drop	Backup Table with data for master data and customer related data (Transaction/audit or history snapshot data will be excluded) by table primary
	Rename	N/A
	Alter - Data Type	N/A
	Alter - Length	N/A. Support Increase Length only. Reducing not Supported
	Alter - Default	N/A
	Alter - Not Null-able	N/A
	Alter - Null-able	Rollback not required
Constraints	Create	N/A
	Drop	Backup DB object Using DBMS_METADATA
Indexes	Create	N/A
	Drop	Backup DB object Using DBMS_METADATA
Sequence	Create	N/A
	Drop	Backup DB object Using DBMS_METADATA
Views	Create	N/A
	Replace	Backup DB object Using DBMS_METADATA
	Drop	Backup DB object Using DBMS_METADATA
Procedures	Create	N/A
	Replace	Backup DB object Using DBMS_METADATA
	Drop	Backup DB object Using DBMS_METADATA
Functions	Create	N/A
	Replace	Backup DB object Using DBMS_METADATA
	Drop	Backup DB object Using DBMS_METADATA
Triggers	Create	N/A
	Replace	Backup DB object Using DBMS_METADATA
	Drop	Backup DB object Using DBMS_METADATA
Package	Create	N/A
	Replace	Backup DB object Using DBMS_METADATA
	Drop	Backup DB object Using DBMS_METADATA
Types	Create	N/A
	Replace	Backup DB object Using DBMS_METADATA
	Drop	Backup DB object Using DBMS_METADATA
Jobs	Create	N/A
	Set Attribute	Backup current job attribute value
	Drop	Backup DB job
Grant		N/A
Revoke		N/A
Synonyms	Create	N/A
	Replace	Backup DB object Using DBMS_METADATA

3.2 DML Level

Action	
INSERT *UPDATE*	N/A Create backup table by current DB version for master data and customer related data (Transaction/audit or history snapshot data will be excluded)
DELETE	Create backup table by current DB version for master data and customer related data (Transaction/audit or history snapshot data will be excluded)

3.3 Change Parameters.dat files according to your database

DATABASE in the **Parameters.dat** file should be updated accordingly with the DB IP address and SID. Update the password for each application user. You have to follow the guidelines given in the **Parameters.dat** file.

Parameters.dat

```
DFN_DB_CONN=192.168.13.101:1522/RELDVNTP
DFN_ALG_PWD=DFN_ALGO/\"password\"
DFN_ARC_PWD=DFN_ARC/\"PkNmjf7^^^^6\"
DFN_NTP_PWD=DFN_NTP/\"6Q8X0u2J7+\"
DFN_MIG_PWD=DFN_MIG/\"oEOH9p6+\"
DFN_PRC_PWD=DFN_PRICE/\"1*%%r^^^^#PLf5\"
DFN_CSM_PWD=DFN_CSM/\"9w_dIp1n\"

# Password format => \"password\"
# "&" Character will not be supported inside the password
# "%" Character is required to use 2 times to represent single "%" character.
# "^" Character is required to use 4 times to represent single "^" character.
# In execute.bat and recompile.bat files
    # %1 => DFN_DB_CONN
    # %str2% => DFN_ALG_PWD
    # %str3% => DFN_ARC_PWD
    # %str4% => DFN_NTP_PWD
    # %str5% => DFN_MIG_PWD
    # %str6% => DFN_PRC_PWD
    # %str7% => DFN_CSM_PWD
```

Figure 2 : An Example of changed Parameter.dat file with DB IP/SID

3.4 Execute Backup-Scripts

Setup.bat file in Backup-Scripts folder should be run to get DDL or DML related backups before applying new DB release.

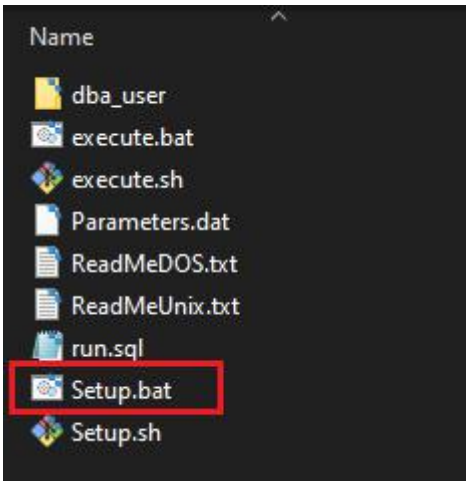

Figure 3 : Apply Changes under Backup Scripts

3.5 Verify Backup Log

Verify backup using below script.

```
SELECT *
    FROM user_schema_backup
ORDER BY backup_seq;
```

4 Apply DB Release

4.1 Apply Build-Scripts

Setup.bat file inside Build-Scripts folder should be run to apply Build Scripts' changes.

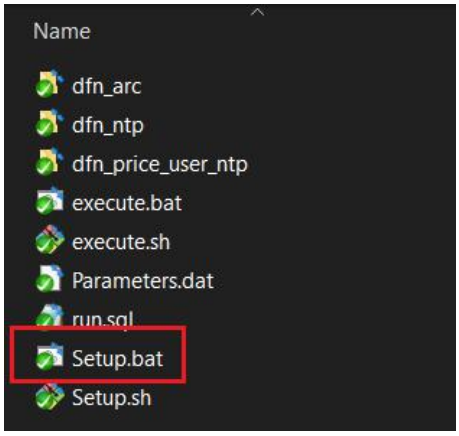

Figure 4 : Apply Changes under Build Scripts

4.2 Verify Application of Build-Scripts

Check content of all log files created under each folder (*ex: dfn_ntp, dfn_arc*) in Build-Scripts folder to make sure no errors occurred from the DB Release applied.

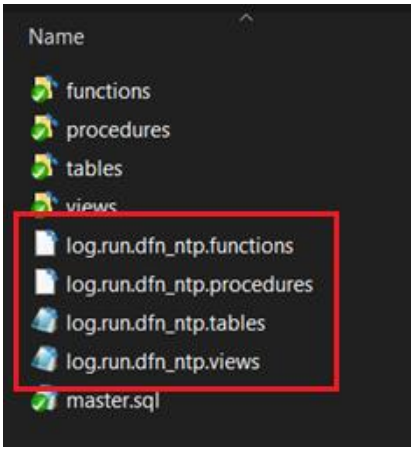

Figure 5 : Check log files from Build-Scripts

4.3 Apply UpdateData

Setup.bat file inside UpdateData folder should be run to apply the data changes (*Make sure you have updated the Parameter.dat file correctly*)

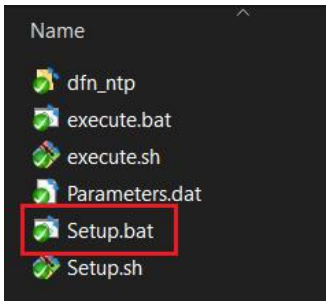

Figure 6 : Apply Changes under UpdateData

4.4 Verify Application of UpdateData

Check content of all log files created under each folder (*ex: dfn_ntp, dfn_arc*) in UpdateData to make sure no errors occurred from the DB Release applied.

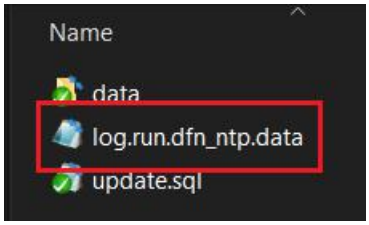

Figure 7 : Check log files from UpdateData

5 Rollback DB Release

Rollback DB Release is supported only immediately after the new DB release deployment due to any failure of DB/Application components. You can rollback new DB release DDL or Data changes based on below T&Cs. New DB package will be created on current user schema to support the exercise and removed at the end of the exercise. Data restore will be applicable only for master data and customer related data (Transaction/audit or history snapshot data will be excluded).

Type	*Action*	
Tables	Create	Drop new object
	Drop	Restore Table and data
	Rename	Rename as original table
Columns	Create	Drop new object
	Drop	Restore Table column and Merge backup table data with Active table data by previous DB version and table primary key for master data and customer related data (Transaction/audit or history snapshot data will be excluded)
	Rename	Rename as original table column
	Alter - Data Type	N/A
	Alter - Length	N/A. Support Increase Length only. Reducing not Supported
	Alter - Default	N/A
	Alter - Not Null-able	Make column as Null-able. No rollback for data
	Alter - Null-able	No rollback
Constraints	Create	Drop new object
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Indexes	Create	Re-executable script (validate and create). No rollback
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Sequence	Create	Re-executable script (validate and create). No rollback
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Views	Create	Drop new object
	Replace	Restore backup object Using DBMS_LOB /DBMS_SQL
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Procedures	Create	Drop new object
	Replace	Restore backup object Using DBMS_LOB /DBMS_SQL
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Functions	Create	Drop new object
	Replace	Restore backup object Using DBMS_LOB /DBMS_SQL
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Triggers	Create	Drop new object
	Replace	Restore backup object Using DBMS_LOB /DBMS_SQL
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Package	Create	Drop new object
	Replace	Restore backup object Using DBMS_LOB /DBMS_SQL
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Types	Create	Drop new object
	Replace	Restore backup object Using DBMS_LOB /DBMS_SQL
	Drop	Restore backup object Using DBMS_LOB /DBMS_SQL
Jobs	Create	Drop new DB job
	Set Attribute	Revert change on Attribute
	Drop	Create DB job
Grant		N/A
Revoke		Grant permission revoked
Synonyms	Create	Drop new DB job
	Replace	Restore backup object Using DBMS_LOB /DBMS_SQL

5.1 DML Level

Action	
INSERT	Delete data inserted by new DB release
UPDATE	Merge backup table data with Active table data by previous DB version and table primary key for master data and customer related data (Transaction/audit or history snapshot data will be excluded)
DELETE	Merge backup table data with Active table data by previous DB version and table primary key for master data and customer related data (Transaction/audit or history snapshot data will be excluded)

5.2 Execute Rollback-Scripts

Setup.bat file inside Rollback DB Release folder should be run to rollback DDL or DML related changes after applying the new DB release.

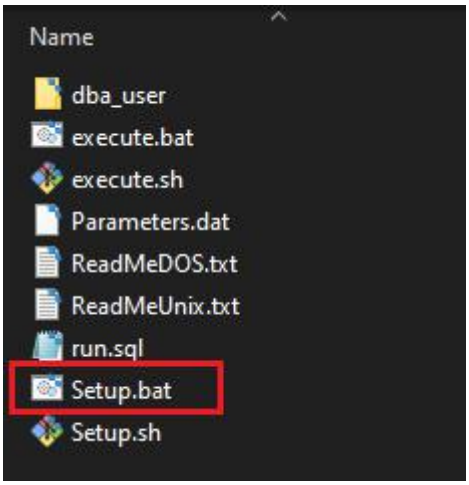

Figure 8 : Apply Changes under Rollback DB Release

5.3 Verify Rollback Log

Verify rollback using below script.

```
SELECT * FROM user_schema_backup_error_log;
```

6 Verify Post-Conditions for Applied DB Release

As same as you verified the pre-conditions, you should check for version update and invalid objects. (Log in to DB with the same user used to apply DB Release)

1. Verify DB Release version using below script.

```
SELECT *
  FROM dfn_ntp.v00_sys_config
 WHERE v00_key = 'VER_DB';
```

   NOTE: The applied DB Release version should be resulted.

2. Check DB objects which are not 'VALID' in the DB (*DB objects which are not compiled currently, need to identified and compiled*)

```
SELECT *
  FROM all_objects
 WHERE status <> 'VALID';
```

3. Incorrectly deployed objects (*DB objects deployed in logged in schema due to schema prefix not specified need to be verified*)

```
SELECT * FROM user_objects;
```

7 Clean-Up DDL/DML backups

This is to clean any backups (Objects or Data) taken during the time of DB release deployment. Once this is executed, you will not be able to rollback any DB to any previous version before current release version. New DB package will be created on current user schema to support the exercise and removed at the end of the exercise.

7.1 Execute Clean-Up

Setup.bat file inside Clean-Up folder should be run to clean DDL or DML backups taken in any previous DB release deployment.

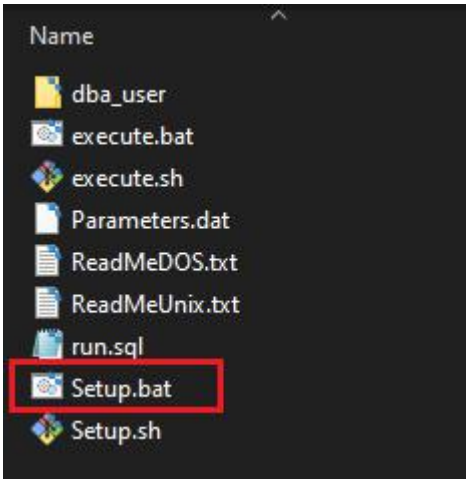

Figure 9 : Apply Changes under Clean Up